

REMARKS

Claims 1-20 were examined. Claims 1-4, 6-7, 12-15 and 19 are amended. Claims 1-20 remain in the Application.

The Patent Office rejects claims 1-4, 6-7 and 11 under 35 U.S.C. §102(b) and claims 5, 8-10 and 12-20 under 35 U.S.C. §103(a). Reconsideration of the rejected claims is respectfully requested in view of the above amendments and the following remarks.

A. 35 U.S.C. §102(b): Rejection of Claims 1-4, 6-7 & 11

The Patent Office rejects claims 1-4, 6-7 and 11 under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 5,770,035 of Faita (Faita). Faita discloses a method for the production of chlorine from aqueous solutions of hydrochloric acid in a membrane electrolysis cell. The cell comprises a cathode compartment equipped with a gas diffusion cathode fed with air or enriched air or oxygen and an anodic compartment with an anode provided with an electrocatalytic coating for chlorine evolution. Figure 1 shows an electrochemical cell of Faita. The cell comprises an ion exchange membrane 1, cathodic and anodic compartments 2 and 3, anode 4, acid feeding nozzle 5, nozzle 6, wall 7 delimiting the anode compartment, gas diffusion cathode 8, cathode supporting element 9 comprising a thick expanded metal sheet or mesh 10 and a thin expanded metal sheet or mess 11, nozzle 12, nozzle 13 and cathode compartment delimiting wall 14. The cell also includes peripheral gaskets 15 and 16, as seen in Figure 1.

Independent claim 1 describes an apparatus including a first cell frame, a second cell frame, a compartment between the first cell frame and the second cell frame to house an anode electrode, a cathode electrode, and a membrane between the anode electrode and the cathode electrode, and a screen spacer interposed between the first cell frame and the membrane or the second cell frame and the membrane that provides a defined distance between the membrane and the electrode. Support for the language of the spacer interpose between a cell frame, may be found in the Application at page 7, lines 8-11. Support for the language that a spacer provides the defined distance between a membrane and an electrode may be found in the Application at page 3, lines 16-19.

Independent claim 1 is not anticipated by Faita, because Faita does not describe an apparatus that includes a screen spacer interposed between a first cell frame and a membrane or a second cell frame and the membrane that provides a defined distance between the membrane and the electrode. With regard to the screen spacer, the Patent Office points to peripheral gaskets 15 and 16. These gaskets appear to surround the perimeter of the cell of Faita. They are not described as providing a defined distance between the membrane and the electrode. Without more information provided by Faita, one can assume that the gaskets provide a seal around anode wall 7 and cathode wall 14 and exposed membrane 1 to prevent the escape of a fluid. It is not apparent or inherent that the gaskets also supply a spacer function as that word is defined in the Application and claim 1. See Application, page 3, lines 16-19.

For the above stated reasons, Applicant respectfully requests that the Patent Office withdraw the rejection of claim 1 under 35 U.S.C. §102(b) as anticipated by Faita. Claims 2-4, 6-7 and 11 depend from claim 1 and therefore contain all the limitations of that claim. For at least the reasons stated with respect to claim 1, claims 2-4, 6-7 and 11 are not anticipated by Faita.

Applicant respectfully requests that the Patent Office withdraw the rejection of claims 1-4, 6-7 and 11 under 35 U.S.C. §102(b) as anticipated by Faita.

B. 35 U.S.C. §102(b): Rejection of Claims 1, 6-7 & 11

The Patent Office rejects claims 1, 6-7 and 11 under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 4,915,927 of Lipsztajn et al. (Lipsztajn). Lipsztajn discloses a method for producing chloric acid in an electrolytic-electrodialytic process. Figure 1 shows cell 10 including central compartment 12, separated from anode compartment 14 in which is located cell anode 16 by anion-exchange membrane 18 and from cathode compartment 20 in which is located cell cathode 22 by cation-exchange membrane 24.

Claim 1 is not anticipated by the Lipsztajn, because Lipsztajn does not describe an apparatus including a screen spacer interpose between a first cell frame and a membrane or a second cell frame and a membrane that provides a defined distance between the membrane and the electrode. Applicant is unable to find any discussion in Lipsztajn about a spacer.

Claims 6-7 and 11 depend from claim 1 and therefore contain all the limitations of that claim. For at least the reasons stated with respect to claim 1, claims 6-7 and 11 are not anticipated by Lipsztajn.

Applicant respectfully requests that the Patent Office withdraw the rejection that claims 1, 6-7 and 11 under 35 U.S.C. §102(b) as anticipated by Lipsztajn.

C. 35 U.S.C. §103(a): Rejection of Claims 5 & 13-18

The Patent Office rejects claims 5 and 13-18 under 35 U.S.C. §103(a) as obvious over Faita in view of the article, "Newest News About Brown's Gas" (Brown). Faita is cited for its teaching regarding independent claim 1 and Brown is cited for disclosing a cell frame being transparent or translucent.

Claims 5 and 13 depend from claim 1 and therefore contain all the limitations of that claim. Claims 5 and 13 are not obvious over the cited references, because the references fail to disclose an apparatus including a screen spacer interposed between a first cell frame and a membrane or a second cell frame and a membrane that provides a defined distance between the membrane and the electrode. As noted above with respect to claim 1, Faita does not disclose a spacer and gaskets 15 and 17 cannot be considered equivalent to spacers as described in claim 1. Brown does not cure the deficiency of Faita. Further, there is no motivation, suggestion or prediction in the cited references to interpose a spacer between a cell frame and a membrane. Referring to Faita, it appears, for example, that anode wall 7 and cathode wall 14 are constructed to eliminate the need for any spacer.

Independent claim 14 describes an apparatus including a first cell frame including a first compartment housing and anode and a second cell frame including a second compartment housing and cathode, when the first compartment and the second compartment collectively form a compartment to additionally house a membrane positioned between the anode and the cathode and a spacer interposed between the second cell frame and the first membrane that provides a defined distance between the membrane and the cathode. As noted above with respect to claim 1, the cited references do not disclose or provide any motivation, suggestion, or prediction to use a spacer as claimed in claim 14.

Claims 15-18 depend from claim 14 and therefore contain all the limitations of that claim. For at least the reasons stated with respect to claim 14, claims 15-18 are not obvious over the cited references.

Applicant respectfully requests that the Patent Office withdraw the rejection of claims 5 and 13-18 under 35 U.S.C. §103(a).

D. 35 U.S.C. §103(a): Rejection of Claims 19-20

The Patent Office rejects claims 19-20 presumably under 35 U.S.C. §103(a) as obvious over Faita. The Patent Office notes that Faita does not expressly teach a tank containing a process solution to be treated, but a process line inherently would have been present and connected to in-flow port 5 and one of ordinary skill in the art would have considered it obvious to have added a tank to the apparatus of Faita for holding the solution to be treated.

Independent claim 19 describes a system including a ME unit comprising a first cell frame, a second cell frame, a plurality of screen spacers including a first screen spacer interposed between the first cell frame and a first membrane and a second screen spacer interposed between the second cell frame and a membrane and a second screen spacer interposed between the second cell frame and the membrane, with the plurality of screen spacers providing a defined distance between respective electrodes (anion cathode).

Without accepting the Patent Office's inherency argument, as noted above with respect to claim 1, Faita does not describe screen spacers that provide a defined distance between a membrane and an electrode. Further, Faita does not provide any motivation, suggestion or prediction for such screen spacers. Accordingly, claim 19 is not obvious over Faita.

Claim 20 depends from claim 19 and therefore contains all the limitations of that claim. For at least the reasons stated with respect to claim 19, claim 20 is not obvious over Faita.

Applicant respectfully requests that the Patent Office withdraw the rejection to claims 19-20 under 35 U.S.C. §103(a).

E. 35 U.S.C. §103(a): Rejection of Claims 8-10 & 19-20

The Patent Office rejects claims 8-10 and 19-20 under 35 U.S.C. §103(a) as obvious over Faita in view of U.S. Patent No. 5,783,051 of Hirai et al. (Hirai) and Brown. Hirai is cited for a clamping configuration.

Claims 8-10 depend from independent claim 1 and therefore contain all the limitations of that claim. Claim 20 depends from claim 19 and therefore contain all the limitations of that claim. Thus, claims 8-10 and 19-20 are not obvious over the cited references, because the cited references fail to disclose or provide any motivation, suggestion or prediction a screen spacer that provides a defined distance between a membrane and an electrode as provided in each of claim 1 and claim 19. Applicant respectfully requests that the Patent Office withdraw the rejection to claims 8-10 and 19-20 under 35 U.S.C. §103(a).

F. 35 U.S.C. §103(a): Rejection of Claims 2-5 & 12-18

The Patent Office rejects claims 2-5 and 12-18 under 35 U.S.C. §103(a) as obvious over Lipsztajn in view of Faita and Brown. Claims 2-5 and 12-13 depend from claim 1 and therefore contain all the limitations of that claim. Claims 15-18 depend from claim 14 and contain all the limitations of that claim. Claims 2-5 and 12-18 are not obvious over the cited references, because the cited references fail to describe or provide any motivation, suggestion or prediction for an apparatus including a screen spacer that provides a defined distance between a membrane and an electrode (claim 1) or a spacer that provides a defined distance between a membrane and a cathode (claim 14). Applicant respectfully requests that the Patent Office withdraw the rejection to claims 2-5 and 12-18 under 35 U.S.C. §103(a).

G. 35 U.S.C. §103(a): Rejection of Claims 8-10 & 19-20

The Patent Office rejects claims 8-10 and 19-20 under 35 U.S.C. §103(a) as obvious over Lipsztajn in view of Hirai and Brown. Claims 8-10 depend from claim 1 and therefore contain all the limitations of that claim. Claim 20 depend from claim 19 and therefore contains all the limitations of that claim. Claims 8-10 and 19-20 are not obvious over the cited references, because the cited references fail to describe or provide any motivation, suggestion or prediction for an apparatus including a screen spacer that provides a defined distance between a membrane

and an electrode (claim 1) or a ME unit including a plurality of screen spacers that provides a defined distance between respective electrodes and a membrane (claim 19).

Applicant respectfully requests that the Patent Office withdraw the rejection to claims 8-10 and 19-20 under 35 U.S.C. §103(a).

H. Double Patenting Rejection

Claims 1, 3-7, 11 and 13 are provisionally rejected under obviousness-type double patenting of claims 13 and 14 of co-pending U.S. Patent Application No. 10/763,691. Applicant respectfully requests deferral of any filing of a terminal disclaimer until a confirmation by the Patent Office of the allowability of the pending claims.

CONCLUSION


In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the prior art of record and are in condition for allowance and such action is earnestly solicited at the earliest possible date.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly extension of time fees.

Respectfully submitted,

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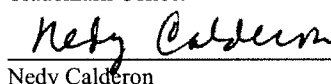


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